

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in this application.

Claims 1-21 (canceled)

Claim 22 (previously presented): An isolated nucleotide sequence, wherein the nucleotide sequence encodes a protein comprising the amino acid sequence of SEQ ID NO:63.

Claim 23 (canceled).

Claim 24 (currently amended): An isolated nucleotide sequence comprising

- (i) the nucleotide sequence of SEQ ID NO:36;
- (ii) a nucleotide sequence that hybridizes to SEQ ID NO:36 under high stringency conditions, wherein said high stringency conditions comprise hybridization conditions comprising 50% formamide and 5X SSPC at 50°C and washing conditions comprising 0.5X SSPC at 60°C, ~~and wherein said nucleotide sequence encodes a potassium channel, wherein said potassium channel comprises a first pore-forming domain interposed between a first and a second transmembrane helix and a second pore-forming domain interposed between a third and a fourth transmembrane helix, and wherein the first pore-forming domain comprises SEQ ID NO:57, wherein~~

~~X at positions 1, 4, and 5 are T or S;~~

~~X at position 5 is I or V; and~~

~~X at position 8 is V, L, Y, F, M, or I;~~

(iii) a nucleotide sequence that is degenerate to the nucleotide sequence of SEQ ID NO:36; or

(iv) a functional derivative comprising at least 40% homology to the nucleotide sequence of SEQ ID NO:36,

wherein said nucleotide sequence encodes a potassium channel, wherein said potassium channel comprises a first pore-forming domain interposed between a first and a second transmembrane helix and a second pore-forming domain interposed between a third and a fourth transmembrane helix, and wherein the first pore-forming domain comprises SEQ ID NO:57, wherein

X at positions 1, 4, and 5 are T or S;

X at position 5 is I or V; and

X at position 8 is V, L, Y, F, M, or I.

Claims 25 and 26 (canceled)

Claim 27 (currently amended): A vector comprising the ~~nucleic acid~~ nucleotide sequence of Claim 22 or Claim 24.

Claim 28 (canceled)

Claim 29 (previously presented): A vector comprising the nucleotide sequence of Claim 24.

Claim 30 (previously presented): A transformed yeast cell comprising the vector of Claim 27.

Claims 31 and 32 (canceled)

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Claim 33 (currently amended): A kit comprising the nucleotide ~~sequence~~(s)
sequence of Claim 22 or Claim 24.

Claims 34-39 (canceled)